



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,315	09/22/2003	Joseph G. Supina	81044241/201-1453	2314
28395 7590 06/20/2007 BROOKS KUSHMAN P.C./FGTL 1000 TOWN CENTER 22ND FLOOR SOUTHFIELD, MI 48075-1238			EXAMINER AVERY, BRIDGET D	
			ART UNIT 3618	PAPER NUMBER
			MAIL DATE 06/20/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



UNITED STATES PATENT AND TRADEMARK OFFICE

---

Commissioner for Patents  
United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

**MAILED**

JUN 20 2007

**GROUP 3600**

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/605,315  
Filing Date: September 22, 2003  
Appellant(s): SUPINA ET AL.

---

Donald J. Harrington  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed January 4, 2007 appealing from the Office action mailed April 7, 2006.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

5887670	TABATA ET AL.	3-1999
5846155	TANIGUCHI ET AL.	12-1998

Art Unit: 3618

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tabata et al. (US Patent 5,887,670) in view of Taniguchi et al. (US Patent 5,846,155).

Claim 1	Appellant's Specification	Reference
An Internal combustion engine	(10) page 6, [0020]	(12) col. 13, lines 12-29
An electric motor	(12) page 6, [0020]	(14) col. 13, lines 12-29
An electric generator	(16) page 7, [0020]	(14) col. 13, lines 12-29
A battery	(18) page 7, [0020]	(58) col. 18, lines 65-67
A geared transmission	(20) page 7, [0021]	(16) col. 13, lines 30-44
A first element connected drivably to the engine	(52) page 10, [0029] Figure 2	(16c) col. 13, lines 40-41, Figure 1
A second element connected drivably to the motor	(48) page 10, [0029] Figure 2	(16r) col. 13, lines 36-38, Figure 1
A rotor	(44) page 10, [0029]	Inherent, see rotor shaft (14r), col. 13, lines 39-40
A third element	(50) page 10, [0029]	(16s), col. 13, lines 38-40
A reaction brake	(60) page 10, [0029]	See col. 5, lines 36-42
Clutches/brakes	(62) page 11, [0031]	(CE1, CE2), col. 5, lines 36-42 and col. 20, lines 5-30

A torque output element	(64) page 11, [0031]	(26), col. 13, lines 40-42
-------------------------	----------------------	----------------------------

The clutch (CE1) is positioned between the ring gear (16r) and the torque output element (26), as clearly illustrated in Figure 1. When the clutch (CE1) is disengaged, the motor (14) is isolated from the ring gear (16r). See column 21, lines 9-29.

Tabata et al. lacks the teaching of a reaction brake that anchors the ring gear during reverse driving power delivery.

Taniguchi et al. teaches a reverse brake that anchors a ring gear during a reverse driving power delivery mode, as taught in col. 8, lines 55-62 and col. 15, lines 32-48.

Note, Taniguchi et al. further teaches a clutch engaged during operation of the powertrain in a split-power delivery mode in a forward driving direction.

Based on the teachings of Taniguchi et al., it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to provide a brake that anchors the ring gear during reverse driving power delivery mode to provide multiple modes of operation by designating the motor mode to drive the vehicle by the motor-generator while the engine is in an idling state to enhance efficiency.

#### **(10) Response to Argument**

Art Unit: 3618

On page 9, lines 1-3, appellants argue “the second reaction brake does not anchor the ring gear during operation in a split delivery mode; and a second reaction brake does not act on the sun gear 16s during engine starting.

Contrary to appellant's argument, in the operation mode 4, the first and second clutches (CE1, CE2) are both engaged (turned ON) and the engine (12) and the motor/generator (14) are both operated (i.e. split delivery mode). See column 25, lines 21-25.

Accordingly, clutch (CE1) engages/anchors the ring gear (16r) during operation in the split delivery mode.

Contrary to appellant's argument, in operation mode 9 taught by Tabata et al., ('670) the first and second clutches CE1, CE2 are both engaged (turned ON) and the motor/generator (14) is operated to start the engine (12) through the planetary gear device (16). See column 20, lines 7-12.

Appellant's understanding of the Examiner's application of Tabata et al. (US Patent 5,887,670) against pending claims 1-11 is inaccurate. For instance, the non-final rejection mailed on October 7, 2005 and the final rejection mailed on April 7, 2006 makes no reference to a first reaction brake “(B0)”. The reference number designating the first reaction brake was intentionally omitted because Tabata et al. teaches several clutches and brakes in his power transmitting system. Tabata et al. anticipates the provision of additional clutches and brakes “so that the hybrid drive system may be

Art Unit: 3618

selectively placed in a plurality of operation modes which include one or more operation modes in addition to the motor drive mode and the engine drive modes,” as clearly stated in column 5, lines 36-42.

Contrary to appellant’s arguments, reverse drive of the motor in the powertrain of Tabata et al. is not achieved entirely independently of the motor (14). In fact, in column 41, lines 46-55, Tabata et al. teaches a mode of operation where reverse rotation motor torque is determined depending upon the engine speed. It is noted that appellant has failed to clearly define “reverse travel of the vehicle” in his claims. Therefore, the claims fail to exclude drive/rotation of the motor in a reverse direction.

In response to appellant’s argument which states “the motor 14 of the ‘670 patent, with the clutch CE1 disengaged, is not isolated from the ring gear during reverse drive.

Clearly, engagement of a clutch (CE1, CE2) connects the motor (14) to the ring gear (16r) and disengagement of a clutch (CE1, CE2) isolates the motor (14) from the ring gear (16r). See column 20, lines 13-24 and column 30, lines 45-64. Note, reverse drive is clearly taught in column 30.

Contrary to argument found on page 10 of the Brief, appellant’s, claims do not restrict the application of a combined motor/generator against his claims. In fact, each and every element of appellant’s claims is taught by Tabata et al. (‘670), as shown in the element-by-element comparison in the table above.

In response to appellant's argument (found on page 11) that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. In this case, it would have been obvious to one having ordinary skill in the art because Taniguchi et al. teaches a system with modes of operation similar to Tabata et al. while Tabata et al. ('607) teaches multiple modes of operation and anticipates the provision of additional clutches and brakes, as stated in column 5, lines 36-42.

On page 11 of the Brief Appellant argues, "if the engine is in an idling state, it obviously would not be capable of driving the generator to charge the battery to power, in turn, the motor." Contrary to appellant's remarks, Taniguchi et al. ('155) teaches a regenerative braking force by the engine that charges the battery. See column 15, lines 49-67 and column 16, lines 1-4.

In response to appellant's argument found on page 12 with respect to claims 3 and 4, Tabata et al. teaches an operation mode where "both clutches CE1 and CE2 are engaged (turned ON), and the engine 12 is turned ON, while the motor/generator 14 is placed in the CHARGING state to charge the electric storage device 58 with



Art Unit: 3618

regenerative braking, as indicated in the table of FIG. 9, whereby the vehicle is driven by the output of the engine 12 while the electric energy storage device 58 is charged with the electric energy generated by the motor/generator 14.” This teaching in Tabata et al. clearly contradicts appellant’s argument. See column 24, lines 21-30.

In response to appellant's argument, found on page 12 with respect to claim 3, that the references fail to show certain features of appellant's invention, it is noted that the features upon which appellant relies (i.e., a direct drive in the planetary gearing to permit the engine to drive the generator “in a torque delivery path that is isolated from the torque delivery path for the motor”) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. The clutches (CE1, CE2) taught by Tabata et al. are clearly explained above.

In response to appellant's argument, found on page 12 with respect to claim 5, Tabata et al. (670) teaches at least one clutch that is engaged during forward drive. See the chart in Figure 3.

In response to appellant's argument, found on page 13 with respect to claim 8, see the explanation above with reference to claims 3 and 4.

Art Unit: 3618

In response to appellant's argument, found on page 13 with respect to claims 9 and 10, Tabata et al. ('670) teaches countershaft gears (32) in the power flow path between the motor (14) and the torque output element (26) as well as between the motor (14) and the traction wheels (inherently taught).

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Bridget Avery

Conferees:

Bridget Avery 

Christopher Ellis 

Meredith Petravick 



CHRISTOPHER P. ELLIS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3600